

SEARCH FOR CHEMICAL BIOMARKERS ON MARS USING THE SAMPLE ANALYSIS AT MARS INSTRUMENT SUITE ON THE MARS SCIENCE LABORATORY. D. P. Glavin¹, P. Conrad¹, J. P. Dworkin¹, J. Eigenbrode¹, P. R. Mahaffy¹ and the SAM team, ¹ NASA Goddard Space Flight Center, Greenbelt, MD 20771, daniel.p.glavin@nasa.gov.

One key goal for the future exploration of Mars is the search for chemical biomarkers including complex organic compounds important in life on Earth. The Sample Analysis at Mars (SAM) instrument suite on the Mars Science Laboratory (MSL) will provide the most sensitive measurements of the organic composition of rocks and regolith samples ever carried out *in situ* on Mars. SAM consists of a gas chromatograph (GC), quadrupole mass spectrometer (QMS), and tunable laser spectrometer to measure volatiles in the atmosphere and released from rock powders heated up to 1000°C. The measurement of organics in solid samples will be accomplished by three experiments: (1) pyrolysis QMS to identify alkane fragments and simple aromatic compounds; (2) pyrolysis GCMS to separate and identify complex mixtures of larger hydrocarbons; and (3) chemical derivatization and GCMS extract less volatile compounds including amino and carboxylic acids that are not detectable by the other two experiments.